

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
JUMPER HARNESS, ITEM 392 ----- SV821756-2 (1)	2/2	392FM12 Electrical open in status lines. Cable chafing against connector shell or shield. Improper connector strain relief. Faulty connection between the connector and the lead wires, conductor severed, contact resistance.	END ITEM: Loss of continuity in status line. GFE INTERFACE: Loss of ability to display EMU transducer readings on DCM and perform suit leak check. Inability to monitor the operational integrity of the EMU. MISSION: Loss of use of one EMU. Suit leak check cannot be performed. CREW/VEHICLE: None. TIME TO EFFECT /ACTIONS: Minutes. TIME AVAILABLE: Minutes. TIME REQUIRED: Minutes. REDUNDANCY SCREENS: A-N/A B-N/A C-N/A	A. Design - Open circuits are minimized by the following: Each connector/adaptor ring interface is locked in place to prevent rotation by a mechanical lock. #24 Teflon insulated wires and connector provide electrical conduction and insulation properties to prevent wire breakage and to help prevent shorting. Connector pins are operating at 56.7% of derated temperature and wire at less than 1% of derated current. The woven Halar sheath is assembled over the internal cables to provide protection from abrasion and impact. Strain relief provided by the combination of convolute tubing, metal EMI braid, and 0.5" extra cable length. The braided items are secured by a band strap at each connector/cable interface. The convolute tubing is threaded into the connector. Wire crimping is performed per SVHS4909 (based on MSFC Spec-Q-1A). B. Test - Component Acceptance Test - The 392 harness is subjected to acceptance test per AT-E-392 prior to final acceptance to ensure there are no workmanship problems that could cause an open or short circuit. Each connector/harness interface is subjected to a 9-lb. pull test. The insulation resistance between each conductor and the ground circuit is measured during this test to ensure there are no intermittent shorts and to verify the integrity of the harness strain relief. A continuity test is performed to measure the resistance of circuit to ensure there are no open circuits or high resistance paths. The insulation resistance and dielectric strength between each conductor and the shield ground is measured to ensure there are no shorts. PDA Test - The status lines are checked during DCM PDA testing per SEMU-60-015 para. 4 (Electrical Testing). Certification Test - Certified for a useful life of 15 years (ref. EMU1-13-046). C. Inspection - To ensure that there are no workmanship problems which could cause an open circuit in the harness conductors, the following inspections are made: Contact crimp samples are made prior to start of crimping and at the conclusion of crimping and pull tested to ensure the crimp tooling is operating properly. crimp terminations are inspected for defects. Harness cables and conductors visually inspected prior to assembly to ensure there are no defects which could cause an open due to workmanship. Electrical bond test is performed to verify ground path through various points on the harness. In-process and final electrical checkout of the harness (conductor continuity, dielectric strength and insulation resistance tests) are performed to ensure there are no open circuits. D. Failure History - None. E. Ground Turnaround - Tested per FEMU-R-001, Pre-Flight V1103 Performance Data and Item 113 Regular Check. FEMU-R-001, para. 8.2, EMU Pre-flight KSC Checkout for EET processor

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		392FM12		<p>F. Operational Use - Crew Response -PreEVA: When detected during periodic status check, trouble problem using RTDS, consider third EMU if available. Otherwise, EMU is no/c EVA. EVA: When detected during periodic status check, troubleshoot using R1 Terminate EVA.</p> <p>Training - Standard training covers this failure mode.</p> <p>Operational Considerations - Flight rule A15.1.2-2 of "Space Shuttle Operational Flight Rules", NSTS-128 defines go/no go criteria related to EMU CWS. Generic EVA Checklist, JSC-4 procedures Section 3 (EMU Checkout) and 4 (EVA prep) verify hardware integri and systems operational status prior to EVA. Real Time Data System allows ground monitoring of EMU systems.</p>

EXTRAVEHICULAR MOBILITY UNIT
SYSTEMS SAFETY REVIEW PANEL REVIEW
FOR THE
I-392 JUMPER SIGNAL HARNESS
CRITICAL ITEM LIST (CIL)
EMU CONTRACT NO. NAS 9-97150

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